	Application No.	Applicant(s)
Notice of Allowability	10/597,892	KALLESOE, CARSTEN
	Examiner	Art Unit	
	BRYAN LETTMAN	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the application as amended*.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are *3,8-14,16,17 and 25*.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All   b) ☐ Some*   c) ☒ None   of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
      Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *20111012-A* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/B. L./	/Devon C Kramer/
Examiner, Art Unit 3746	Supervisory Patent Examiner, Art Unit 3746

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview

with John James McGlew on July 25, 2011 and October 12, 2011. The application has

been amended as follows:

In the specification, page 1 lines 3-6, "pump assembly, according to the features

specified in the introductory part of claim 1, as well as a suitable device for carrying out

this method, according to claim 18." should be changed to --pump assembly.--

In the specification, page 1 line 26 - page 2 line 1, "specified in claims 1 and 2.

A corresponding device is defined by the features of claim 18." should be changed to --

specified according to the invention--.

In the specification, page 4 line 32 - page 5 line 1, "The method according to

claim 2 in contrast to that according to claim 1, has" should be changed to --The method

according to the invention has--.

In the specification, page 8 line 12 "example, claim 9 defines in which" should be

changed to --example, in which--.

In the specification, page 9 line 25 "to claim 8, so" should be changed to --to the

invention, so--.

In lines 3-4, 4, 6, 9, 12 and 13, claim 8 reads as follows "the motor". This should be changed to --the pump motor--.

In lines 4, 5, 7-8, 10, 17 and 19, claim 8 reads as follows "the pump". This should be changed to --the pump assembly--.

In line 10 of claim 8, "hydraulic variable" should be changed to --changing hydraulic variable--.

Line 24 of claim 8 reads as follows, "beyond a certain measure". This should be changed to --beyond a threshold--.

Line 25 of claim 8 should end with --equations:--.

Lines 26-41 are blurry. Theses lines should be changed to --

$$L'_s \frac{di_{sd}}{dt} = -R'_s i_{sd} + \frac{L_m}{L_r}\left(R'_r \psi_{rd} + z_p \omega \psi_{rq}\right) + v_{sd} \tag{1}$$

$$L'_s \frac{di_{sq}}{dt} = -R'_s i_{sq} + \frac{L_m}{L_r}\left(R'_r \psi_{rq} - z_p \omega \psi_{rd}\right) + v_{sq} \tag{2}$$

$$\frac{d\psi_{rd}}{dt} = -R'_r \psi_{rd} - z_p \omega \psi_{rq} + R'_r L_m i_{sd} \tag{3}$$

$$\frac{d\psi_{rq}}{dt} = -R'_r \psi_{rq} + z_p \omega \psi_{rd} + R'_r L_m i_{sq} \tag{4}$$

$$T_e = z_p \frac{3}{2}\frac{L_m}{L_r}\left(\psi_{rd} i_{sq} - \psi_{rq} i_{sd}\right) \tag{5}$$

or

$$V_s = Z_s(s) I_s \tag{6}$$

$$\omega = \omega_s - s\omega_s \tag{7}$$

$$I_r = \frac{V_s}{Z_r(s)} \tag{8}$$

$$T_e = \frac{3R_r I_r^2}{s} \tag{9}$$

or

$$L_s \frac{di_{sd}}{dt} = -R_s i_{sd} + z_p \omega L_s \psi_{rq} + v_{sd} \tag{10}$$

$$L_s \frac{di_{sq}}{dt} = -R_s i_{sq} - z_p \omega L_s \psi_{rd} + v_{sq} \tag{11}$$

$$\frac{d\psi_{rd}}{dt} = -z_p \omega \psi_{rq} \tag{12}$$

$$\frac{d\psi_{rq}}{dt} = z_p \omega \psi_{rd} \tag{13}$$

$$T_e = z_p \frac{3}{2} \left(\psi_{rd} i_{sq} - \psi_{rq} i_{sd} \right) \tag{14}$$

--.

Line 43 of claim 8 reads as follows, "is the motor current in direction d". This should be changed to --is a motor current in a direction d--.

Line 44 of claim 8 reads as follows, "the motor current in direction q". This should be changed to --is a motor current in a direction q--.

Line 45 of claim 8 reads as follows, "the magnetic". This should be changed to -- is a magnetic--.

Line 45 of claim 8 reads as follows, "the rotor". This should be changed to --a rotor of the pump motor--.

Line 46 of claim 8 reads as follows, "the magnetic". This should be changed to -- is a magnetic--.

Line 46 of claim 8 reads as follows, "the rotor". This should be changed to --a rotor of the pump motor--.

Line 47 of claim 8 reads as follows, "the motor". This should be changed to --is a pump motor--.

Line 48 of claim 8 reads as follows, "the supply". This should be changed to --is a supply--.

In lines 48, claim 8 reads as follows "the motor". This should be changed to --the pump motor--.

Line 49 of claim 8 reads as follows, "the supply". This should be changed to --is a supply--.

In lines 49, claim 8 reads as follows "the motor". This should be changed to --the pump motor--.

In lines 50, claim 8 reads as follows "the angular". This should be changed to --is an angular--.

In lines 50, claim 8 reads as follows "and impeller or". This should be changed to -- and an impeller or--.

In lines 52 and 53, claim 8 reads as follows "the equivalent". This should be changed to --is an equivalent--.

In lines 52, claim 8 reads as follows "the stator". This should be changed to --a stator--.

In lines 52, claim 8 reads as follows "a asynchronous". This should be changed to --an asynchronous--.

In lines 53, claim 8 reads as follows "the rotor". This should be changed to --a rotor--.

In lines 54, claim 8 reads as follows "the stator". This should be changed to --the stator winding--.

In lines 54-56, claim 8 reads as follows "the inductive". This should be changed to --is an inductive--.

In line 57, claim 8 reads as follows "the pole". This should be changed to --is a pole--.

In lines 58 and 59, claim 8 reads as follows "the phase". This should be changed to --is a phase--.

Between lines 58 and 59, add $--I_R$ is the current of the rotor--.

In line 60, claim 8 reads as follows "the frequency of the supply". This should be changed to --is a frequency of a supply--.

In lines 61, claim 8 reads as follows "the stator". This should be changed to --is a stator--.

In lines 62, claim 8 reads as follows "the rotor". This should be changed to --is a rotor--.

In lines 63 and 64, claim 8 reads as follows "the equivalent". This should be changed to --is an equivalent--.

In line 65, claim 8 reads as follows "the inductive". This should be changed to --is an inductive--.

Between lines 65 and 66, add --s is a pump motor slip--.

In line 66, claim 8 reads as follows "the motor". This should be changed to --a pump motor--.

Line 67 reads as follows, "mechanical-hydraulic pump/motor model is formed by the equation". This should be changed to --mechanical-hydraulic pump model is formed by the equation:--.

In line 69 of claim 8, "equations" should be changed to --equations:--.

In line 72, claim 8 reads as follows "in which is/are". This should be changed to --in which--.

In line 73, claim 8 reads as follows "the temporal derivative of the angular". This should be changed to --is a temporal derivative of an angular--.

In line 74, claim 8 reads as follows "the pump". This should be changed to --is a pump assembly--.

In line 75, claim 8 reads as follows "the moment". This should be changed to --is a moment--.

In line 75, claim 8 reads as follows "the delivery". This should be changed to --a delivery--.

In line 77, claim 8 reads as follows "the friction". This should be changed to --is a friction--.

In line 78, claim 8 reads as follows "the delivery flow of the pump,". This should be changed to --is a delivery flow of the pump assembly,--.

In line 79, claim 8 reads as follows "the differential pressure produced by the pump,". This should be changed to --is a differential pressure produced by the pump assembly,--.

In line 80, claim 8 reads as follows "a_{h2}, a_{h1},". This should be changed to -- a_{h2}, a_{h1}, a_{h0}--.

In line 80, claim 8 reads as follows "the parameters". This should be changed to --are parameters--.

In line 80, claim 8 reads as follows "the relationship". This should be changed to --a relationship--.

In line 81 of claim 8, delete "a_{h0}".

In line 82, claim 8 reads as follows "a_{t2}, a_{t1},". This should be changed to -- a_{t2}, a_{t1}, a_{t0}--.

In line 82, claim 8 reads as follows "the parameters". This should be changed to --are parameters--.

In line 82, claim 8 reads as follows "the relation". This should be changed to --a relation--.

In line 83 of claim 8, delete "a_{t0}".

In line 3, claim 9 reads as follows "a motor". This should be changed to --the motor--.

In line 4, claim 9 reads as follows "the rotational". This should be changed to --the rotor and impeller rotational--.

In line 5 of claim 9, "with the help of the" should be changed to --with the--.

In line 6, claim 9 reads as follows "between pressure". This should be changed to --between a pressure--.

In lines 6-7 of clam 9, "on the one hand" should be deleted.

In line 7 of clam 9, "on the other hand" should be deleted.

In lines 7-9, claim 9 reads as follows "whereupon preferably one checks with equation (15) as to whether the variables computed with the help of the motor model agree or not with those variables computed with the help of the pump model". This should be changed to --wherein equation (15) determines if the variables computed using the electrical motor model agree or not with those variables computed using the mathematical mechanical-hydraulic pump model--.

Lines 2-3 of claim 11 read as follows, "variables, two hydraulic variables are determined by way of measurement". This should be changed to --variables and the changing hydraulic variable, another hydraulic variable is determined such that two hydraulic variables are determined by way of measurement--.

In lines 4-5 of claim 11, ", wherein the type of fault is determined by way of the combinations of fault variables and by way of predefined boundary value combinations" should be deleted.

In line 2, claim 12 reads as follows "the pump". This should be changed to --the pump assembly--.

Lines 3-4 of claim 12 read as follows, "variables, two hydraulic variables are determined by way of measurement". This should be changed to --variables and the changing hydraulic variable, another hydraulic variable is determined such that two hydraulic variables are determined by way of measurement--.

In line 5, claim 12 reads as follows "a surface, wherein one determines". This should be changed to --a surface to define a plurality of surfaces, wherein it is determined--.

In lines 7-8 of claim 12, delete ", and by way of predefined boundary conditions".

In lines 2-3 of claim 14, "in order by way of the measured results which then set in," should be deleted.

In line 3 of claim 14, "specify" should be changed to --determine--.

In lines 3-4, 4, 6, 9, 12 and 13, claim 16 reads as follows "the motor". This should be changed to --the pump motor--.

In lines 4, 5, 7-8, 10, 17, 19, 26, 33, 34 and 38, claim 16 reads as follows "the pump". This should be changed to --the pump assembly--.

In line 25 of claim 16, "pump/motor" should be changed to --pump--.

In line 26 of claim 16, "the hydraulic system" should be changed to --a hydraulic system--.

Line 27 of claim 16, "equation" should be changed to --equation:--.

In line 29, claim 16 reads as follows "in which is/are". This should be changed to --in which:--.

In lines 30-32, claim 16 reads as follows "the constant". This should be changed to --is a constant--.

In lines 30-32, claim 16 reads as follows "describes the". This should be changed to --describes a--.

In lines 30, claim 16 reads as follows "in the pipe". This should be changed to -- in a pipe--.

In lines 31, claim 16 reads as follows "in the valve". This should be changed to -- in a valve of the pipe system--.

In line 33, claim 16 reads as follows "the delivery". This should be changed to -- is a delivery--.

In line 34, claim 16 reads as follows "the differential". This should be changed to --is a differential--.

In line 35, claim 16 reads as follows "the pressure". This should be changed to -- is a pressure--.

In line 35, claim 16 reads as follows "the consumer-side end of the installation". This should be changed to --a consumer-side end of an installation--.

In line 36, claim 16 reads as follows "the supply". This should be changed to --is a supply--.

In line 37 of claim 16, "Z_{out}" should be changed to --z_{out}--.

In lines 37 and 38, claim 16 reads as follows "the static". This should be changed to --is a static--.

In line 38 of claim 16, "Z_{in}" should be changed to --z_{in}--.

In line 39 of claim 16, "p" should be changed to --ρ--.

In line 39, claim 16 reads as follows "the density of the delivery". This should be changed to --is a density of a delivery --.

In line 40, claim 16 reads as follows "the gravitational". This should be changed to --is a gravitational--.

Line 3 of claim 17 reads as follows, "+ k_e (ω". This should be changed to --+ k_1 (ω--

Line 12 of claim 17 reads as follows, "in which represents(s)". This should be changed to --in which--.

In lines 13 and 14, "constants" should be changed to --are constants--.

In lines 15, 17, 19, 21 and 23 of claim 17 "the computed" should be changed to --is a computed--.

Line 24 of claim 17 reads as follows, "quantity". This should be changed to --quantity, and--.

Line 25 of claim 17 reads as follows, "fault variables, and". This should be changed to --are fault variables.--

In lines 26-27 of claim 17, delete "r_1^* -r_4^* surfaces determined by three variables, which represent a fault-free operation of the pump."

In line 4 of claim 25, "the electrical" should be changed to --an electrical--.

In lines 5, 6, 9 and 10, claim 25 reads as follows "the pump". This should be changed to --the pump assembly--.

In line 6, "the power" should be changed to --the electrical power--.

In line 17 of claim 25, "a certain measure" should be changed to --a threshold--.

Line 19 of claim 25 should end with --equations:--.

Lines 20-35 are blurry. Theses lines should be changed to --

$$L'_s \frac{di_{sd}}{dt} = -R'_s i_{sd} + \frac{L_m}{L_r}\left(R'_r \psi_{rd} + z_p \omega \psi_{rq}\right) + v_{sd} \tag{1}$$

$$L'_s \frac{di_{sq}}{dt} = -R'_s i_{sq} + \frac{L_m}{L_r}\left(R'_r \psi_{rq} - z_p \omega \psi_{rd}\right) + v_{sq} \tag{2}$$

$$\frac{d\psi_{rd}}{dt} = -R'_r \psi_{rd} - z_p \omega \psi_{rq} + R'_r L_m i_{sd} \tag{3}$$

$$\frac{d\psi_{rq}}{dt} = -R'_r \psi_{rq} + z_p \omega \psi_{rd} + R'_r L_m i_{sq} \tag{4}$$

$$T_e = z_p \frac{3}{2}\frac{L_m}{L_r}\left(\psi_{rd} i_{sq} - \psi_{rq} i_{sd}\right) \tag{5}$$

or

$$V_s = Z_s(s)I_s \tag{6}$$

$$\omega = \omega_s - s\omega_s \tag{7}$$

$$I_r = \frac{V_s}{Z_r(s)} \tag{8}$$

$$T_e = \frac{3R_r I_r^2}{s} \tag{9}$$

or

$$L_s \frac{di_{sd}}{dt} = -R_s i_{sd} + z_p \omega L_s \psi_{rq} + v_{sd} \tag{10}$$

$$L_s \frac{di_{sq}}{dt} = -R_s i_{sq} - z_p \omega L_s \psi_{rd} + v_{sq} \tag{11}$$

$$\frac{d\psi_{rd}}{dt} = -z_p \omega \psi_{rq} \tag{12}$$

$$\frac{d\psi_{rq}}{dt} = z_p \omega \psi_{rd} \tag{13}$$

$$T_e = z_p \frac{3}{2}\left(\psi_{rd} i_{sq} - \psi_{rq} i_{sd}\right) \tag{14}$$

--.

Line 36 of claim 25 reads as follows, "in which". This should be changed to --in which:--.

Line 37 of claim 25 reads as follows, "is the motor current in direction d". This should be changed to --is a motor current in a direction d--.

Line 38 of claim 25 reads as follows, "the motor current in direction q". This should be changed to --is the motor current in a direction q--.

Line 39 of claim 25 reads as follows, "the magnetic". This should be changed to --is a magnetic--.

Line 39 of claim 25 reads as follows, "the rotor". This should be changed to --a rotor of the pump motor--.

Line 40 of claim 25 reads as follows, "the rotor". This should be changed to --the rotor of the pump motor--.

Line 40 of claim 25 reads as follows, "the magnetic". This should be changed to --is a magnetic--.

Line 41 of claim 25 reads as follows, "the motor". This should be changed to --is a pump motor--.

Lines 42 and 43 of claim 25 reads as follows, "the supply". This should be changed to --is a supply--.

In lines 44, claim 25 reads as follows "the angular". This should be changed to --is an angular--.

In lines 44, claim 25 reads as follows "and impeller or". This should be changed to -- and an impeller or--.

In lines 46 and 47, claim 25 reads as follows "the equivalent". This should be changed to --is an equivalent--.

In lines 46, claim 25 reads as follows "the stator". This should be changed to --a stator--.

In lines 46, claim 25 reads as follows "a asynchronous". This should be changed to --an asynchronous--.

In lines 47, claim 25 reads as follows "the rotor winding". This should be changed to --a rotor winding--.

In lines 48-50, claim 25 reads as follows "the inductive". This should be changed to --is an inductive--.

In line 51, claim 25 reads as follows "the pole". This should be changed to --is a pole--.

In lines 52 and 53, claim 25 reads as follows "the phase". This should be changed to --is a phase--.

In line 54, claim 25 reads as follows "the frequency of the supply". This should be changed to --is a frequency of a supply--.

In lines 55, claim 25 reads as follows "the stator". This should be changed to --is a stator--.

In lines 56, claim 25 reads as follows "the rotor". This should be changed to --is a rotor--.

In lines 57 and 58, claim 25 reads as follows "the equivalent". This should be changed to --is an equivalent--.

In line 59, claim 25 reads as follows "the inductive". This should be changed to --is an inductive--.

In line 66, claim 25 reads as follows "in which is/are". This should be changed to --in which:--.

In line 67, claim 25 reads as follows "the temporal derivative of the angular". This should be changed to --is a temporal derivative of an angular--.

In line 68, claim 25 reads as follows "the pump". This should be changed to --is a pump assembly--.

In line 69, claim 25 reads as follows "the moment". This should be changed to --is a moment--.

In line 69, claim 25 reads as follows "the delivery". This should be changed to --a delivery--.

In line 71, claim 25 reads as follows "the friction". This should be changed to --is a friction--.

In line 72, claim 25 reads as follows "the delivery flow of the pump,". This should be changed to --is a delivery flow of the pump assembly,--.

In line 73, claim 25 reads as follows "the differential pressure produced by the pump,". This should be changed to --is a differential pressure produced by the pump assembly,--.

In line 74, claim 25 reads as follows "a_{h2}, a_{h1},". This should be changed to -- a_{h2}, a_{h1}, a_{h0}--.

In line 74, claim 25 reads as follows "the parameters". This should be changed to --are parameters--.

In line 74, claim 25 reads as follows "the relationship". This should be changed to --a relationship--.

In line 75 of claim 25, delete "a_{h0}".

In line 76, claim 25 reads as follows "a_{t2}, a_{t1},". This should be changed to -- a_{t2}, a_{t1}, a_{t0}--.

In line 76, claim 25 reads as follows "the parameters". This should be changed to --are parameters--.

In line 76, claim 25 reads as follows "the relation". This should be changed to --a relation--.

In line 77 of claim 25, delete "a_{t0}".

Allowable Subject Matter

Claims 3, 8-14, 16, 17 and 25 are allowed. The following is an examiner's statement of reasons for allowance: The prior art does not teach a method for determining faults on operation of a pump assembly wherein an electrical motor model is formed by the following equations:

$$L'_s \frac{di_{sd}}{dt} = -R'_s i_{sd} + \frac{L_m}{L_r}\left(R'_r \psi_{rd} + z_p \omega \psi_{rq}\right) + v_{sd} \tag{1}$$

$$L'_s \frac{di_{sq}}{dt} = -R'_s i_{sq} + \frac{L_m}{L_r}\left(R'_r \psi_{rq} - z_p \omega \psi_{rd}\right) + v_{sq} \tag{2}$$

$$\frac{d\psi_{rd}}{dt} = -R'_r \psi_{rd} - z_p \omega \psi_{rq} + R'_r L_m i_{sd} \tag{3}$$

$$\frac{d\psi_{rq}}{dt} = -R'_r \psi_{rq} + z_p \omega \psi_{rd} + R'_r L_m i_{sq} \tag{4}$$

$$T_e = z_p \frac{3}{2}\frac{L_m}{L_r}\left(\psi_{rd} i_{sq} - \psi_{rq} i_{sd}\right) \tag{5}$$

or

$$V_s = Z_s(s)I_s \tag{6}$$

$$\omega = \omega_s - s\omega_s \tag{7}$$

$$I_r = \frac{V_s}{Z_r(s)} \tag{8}$$

$$T_e = \frac{3R_r I_r^2}{s} \tag{9}$$

or

$$L_s \frac{di_{sd}}{dt} = -R_s i_{sd} + z_p \omega L_s \psi_{rq} + v_{sd} \tag{10}$$

$$L_s \frac{di_{sq}}{dt} = -R_s i_{sq} - z_p \omega L_s \psi_{rd} + v_{sq} \tag{11}$$

$$\frac{d\psi_{rd}}{dt} = -z_p \omega \psi_{rq} \tag{12}$$

$$\frac{d\psi_{rq}}{dt} = z_p \omega \psi_{rd} \tag{13}$$

$$T_e = z_p \tfrac{3}{2}\left(\psi_{rd} i_{sq} - \psi_{rq} i_{sd}\right) \tag{14}$$

or wherein the hydraulic system is defined by the equation:

$$K_j \frac{d\Omega}{dt} = H_p - \left(p_{out} + p\Xi_{out} - p_{in} - p\Xi_{in}\right) - \left(K_v + K_t\right)\Omega^3 \tag{18}$$

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYAN LETTMAN whose telephone number is (571)270-7860. The examiner can normally be reached on Monday - Thursday between 9:00 am and 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
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/B. L./
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